Ontario

Performance Measurement

A Report by the Hospital Supply Chain Metrics Working Group

Ontario Buys

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November 2006

OntarioBuys is a program under the
Treasury Board Office of the
Ontario Ministry of Finance
777 Bay Street, 8th Floor
Toronto, ON M5G 2C8
416-327-1147

For more information, see
www.ontariobuys.fin.gov.on.ca
or e-mail
Ontario.buys@fin.gov.on.ca

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Rev–11–06

FOREWORD

In November 2005, OntarioBuys invited 12 healthcare supply chain specialists to assess the current state of supply chain performance measurement at Ontario hospitals. "Performance Measurement — A Report by the Hospital Supply Chain Metrics Working Group" is the result of this evaluation.

This report is the product of an enormous amount of time, thought and collaboration by the Working Group, whose members thoroughly explored and challenged each other's views and experiences during a series of meetings, including a two-day marathon session in January 2006. Their commitment, collegiality and enthusiasm for the task were truly remarkable.

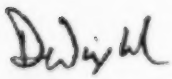
OntarioBuys encourages anyone who is part of Ontario's healthcare supply chain to give the report careful consideration. The numerous concepts, checklists and metrics are invaluable tools for evaluating current operation, identifying opportunities for improvement and measuring progress.

The completion of this report is only a first step along the performance measurement journey. The current reality is that many Ontario healthcare institutions would have difficulty just implementing the metrics in this report. Actually achieving good performance against benchmarks (and in some cases even establishing the benchmarks) still lies ahead.

By accepting this challenge and working collectively, the Ontario healthcare supply chain community can address the gaps and accomplish broad-based implementation of performance metric leading practices. For its part, OntarioBuys, on behalf of the Government of Ontario, will continue to provide leadership and guidance to ensure that the Working Group's recommendations are advanced.

To the Working Group members: thank you for your effort and your vision — "contributing to the highest standard of patient care through comprehensive supply chain excellence." My thanks also to the talented OntarioBuys staff members who supported the initiative; in particular, Jim Hadjiyianni, Jennifer Ship and Rupa Gill.

Sincerely,



Dan Wright
Assistant Deputy Minister
BPS Supply Chain Secretariat
Ontario Ministry of Finance
August 2006

EXECUTIVE SUMMARY

Ontario's hospitals face increasing challenges. Patients deserve and expect a high level of service, medical professionals are adapting to new clinical demands and research solutions, and administrators must focus on managing resources as effectively as possible. These pressures have led to a rethinking of administrative approaches, especially for back-office functions such as supply chain management.

As hospitals have shifted towards supply chain leading practices, a simple question has arisen: how should their progress and performance be measured?

The answer to this question is remarkably complex. With that in mind, the Ontario Ministry of Finance asked a group of healthcare supply chain professionals to consider this question. Convened as the Hospital Supply Chain Metrics Working Group, their work is set out in the report: "Performance Measurement — A Report by the Hospital Supply Chain Metrics Working Group."

The report validates the importance of supply chain transformation and provides practical, workable advice on how best to measure the efficiency and effectiveness of supply chain practices. In particular, the report:

- proposes a series of standards and metrics to be used to evaluate and improve supply chain performance, known as the 'balanced scorecard';
- recommends that the metrics be adopted provincewide so that hospitals can consistently measure and report their performance;
- advises supply chain professionals on how to adopt and use the metrics in support of underlying leading practices; and
- stresses the need for hospital senior managers to be champions of supply chain leading practices.

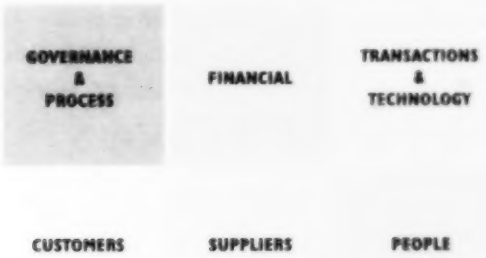
The benefits of transformation

The goal of transformation is to maximize the value of the supply chain function to the organization, and thereby to the Province. Transformation allows organizations to shift their focus from an emphasis on transactional competence to strategic excellence. In the earliest stages of supply chain development, the focus is on practices that make activities through the supply chain cycle — planning, procuring, storing, moving and paying for goods and services — more efficient. With increasing sophistication, the focus shifts to increasing effectiveness and responsiveness. The benefits include lower costs, improved patient care, better service to front-line professionals, and increased value from suppliers.

Supporting leading practices

The members of the Working Group knew that supply chain leading practices had been validated long ago in a wide range of industries. They were also aware that many Ontario healthcare institutions were in the midst of adopting these practices. Their focus was on defining standards and metrics that would help hospitals assess and improve their supply chain performance in the healthcare context.

Due to the complexity and risk associated with hospital supply chains, the Working Group recommended a balanced scorecard approach. The six dimensions of the scorecard recognize that the healthcare "bottom line" isn't profit. The needs of patients and other stakeholders must be taken into account.



For each of the six scorecard areas, the Working Group generated a series of standards and metrics. The standards comprise a "checklist" of conditions that hospitals should strive to meet. The 48 metrics quantify performance in each area. Examples include:

Purchasing response time from requisition to purchase order release
Cost to issue a purchase order
Fill rates to end users

A brief definition and rationale for each metric are included in the report.

Using the report

The Working Group encourages healthcare supply chain professionals to use the report to assess their institution's current practices and measurement processes. They suggest that the core supply chain standards and metrics be adopted within 12 months and higher-level standards and metrics be adopted within three years from the release of this report.

While some of the most advanced practices and related measures might be beyond the immediate reach of some hospitals, every hospital should strive to reach the most advanced level that applies to its circumstances.

The Working Group believes that the proposed standards and metrics must be adopted by Ontario's healthcare institutions if the goal of implementing supply chain leading practices is to be achieved.

More information

The Ministry of Finance is committed to assisting Ontario's Broader Public Sector (BPS) implement supply chain leading practices. It has created the BPS Supply Chain Secretariat, informally known as OntarioBuys, to provide focused resources and support for improving supply chain practices. This summary and the full report were developed with the assistance of OntarioBuys. The full report of the Hospital Supply Chain Working Group has been distributed to supply chain professionals at every Ontario hospital. Copies of the report, and additional copies of this Executive Summary, are available through OntarioBuys.

INTRODUCTION

Ontario's hospitals face increasing pressure to operate more efficiently while maintaining a high level of patient care. By managing the supply chain more strategically, hospitals can reduce costs, improve the quality of patient care, better serve their front-line professionals and generate greater value from relationships with suppliers. Improving supply chain effectiveness can also reduce risks related to supply security both day-to-day and during a public health emergency.

The supply chain opportunity has been recognized in the healthcare sector and the Broader Public Sector (BPS) generally, with numerous organizations working to reap the benefits of implementing leading practices. For its part, the Province established the BPS Supply Chain Secretariat[1], informally known as OntarioBuys, to support and fund supply chain transformation.

OntarioBuys invited 12 Ontario healthcare supply chain specialists to serve on a "Hospital Supply Chain Metrics Working Group." Their task was to assess the current state of Ontario healthcare supply chain performance measurement and to develop a metrics framework to guide the transformation process. Simply put, you can't improve what you aren't measuring.

This report is the product of 10 months of collaboration and sharing of participants' experiences as administrators, consultants and suppliers. Hospital supply chain professionals across the province would benefit from familiarizing themselves with the concepts, metrics and standards it contains. A common approach to supply chain performance measurement would make it much easier for healthcare administrators to compare their institution's performance to peer institutions and would create a common framework and language for learning and sharing of successes.

The Working Group also encourages the Local Health Integration Networks (LHINs) to consider this report. LHIN CEOs and management can use the measures to help in their goal of promoting efficiency and integration. The Working Group asks the LHINs to act as champions of this initiative to show their support for supply chain management and promote the provincewide adoption of this report's performance metric framework not just in hospitals, but more generally in all healthcare institutions.

Ontarians deserve and expect high-quality healthcare. Supply chain performance measurement can drive improvement and the evolution of the supply chain function from a transactional role to a more strategic one, contributing to ensuring that Ontario has an efficient, effective and responsive healthcare system.

CHAPTER 1: A FRAMEWORK FOR ACTION

THE GOAL: CONTRIBUTING TO PATIENT CARE

The Hospital Supply Chain Metrics Working Group began its work by agreeing on a vision for the supply chain function:

> *"Contributing to the highest standard of patient care through comprehensive supply chain excellence."*

The vision speaks to the need to be comprehensive in achieving supply chain transformation, giving rise to underlying "functional visions" encompassing the four major components of supply chain management:

OVERALL HOSPITAL SUPPLY CHAIN VISION

Contributing to the highest standard of patient care through comprehensive supply chain excellence

Hospital Supply Chain Functional Visions

Plan
Informed decision-making through effective anticipation of product supply and demand

Source and Procure
Excellence in strategic and transactional interactions with end-users and suppliers, enabled by e-supply chain tools and processes

Move
Right product, right place, right time — efficiently and responsively

Pay
Realization of supply chain efficiencies through supply chain-payables integration and e-commerce

Turning these visions into reality involves adopting and updating supply chain practices, standards and behaviours. Many Ontario hospitals have started to move in that direction, while others are at an earlier stage. Looking across the Ontario hospital sector, it is helpful to think of three stages of evolution in supply chain practices:

Making Supply Chain Strategic

STAGE 1 Core Supply Chain Operations	STAGE 2 Emerging Supply Chain Practices	STAGE 3 Supply Chain Excellence
• Efficiency Focused	• Technology/Process Gains	• Effectiveness Focused
• Transactional/Operational	• Leverage/Tactical Buying	• Strategic Sourcing
• Local	• Regional/Coordinated	• Global/Differentiated Sourcing
• Contractual Compliance	• Spend Analysis	• Lifecycle Costs/Total Cost of Ownership
• Reactive Problem Resolution	• Performance Management	• Innovation/Supplier Development
• Low Management Attention	• Stakeholder Engagement	• Executive Support & Integration
• Administrative Skill Set	• Competence Development	• Highly Skilled in Sourcing

STANDARDS

• Policy, Processes & Tools	• Systems & Technology	• Plan-to-Pay Control
• Authority Schedules	• Inventory Policy	• Supplier Approval Process
• Performance Appraisal	• Supplier Performance	• Stakeholder Feedback

The diagram illustrates the behaviours identified with the three stages of evolution in supply chain practices and the underlying standards to support supply chain management. In the earlier stages, the focus is on transactional efficiency. Efficiency at this stage can be thought of as minimizing the cost of the plan-to-pay processes. As practices evolve to a higher level, attention shifts to effectiveness, which can be described as ensuring the best value for the organization.

The goal for each hospital should be to improve its supply chain by:

- performing as effectively and efficiently as possible at its current level of evolution; and
- working to move as far as possible towards the higher stages set out in the diagram above.

Progress in supply chain management must go hand-in-hand with better ways of measuring that progress. The goal of this document is not to tell hospitals what steps are required to improve supply chain processes, but instead to provide tools to help identify opportunities for improvement and to track progress. These tools are intended to be of use to every hospital, regardless of its current evolutionary position. The next section discusses in more detail the challenges of differing starting points — and, potentially, differing end points — for Ontario hospitals.

The starting points

Just as every hospital in Ontario is different, so is the supply chain of each hospital. These differences arise from the characteristics of the hospital, including its size, its function, the population it serves, its physical facilities and where it is located. A small community-based hospital, for example, is likely to have very different supply chain concerns and challenges than a large teaching hospital. For this reason, Stage 3 activities might be beyond the immediate reach of a hospital, given its particular circumstances.

Even within a single hospital, there will generally be variations in the evolutionary stages of different parts of the supply chain. A supply chain professional from a specific hospital may well observe that its practices fall into more than one of the stages.

The challenges

Four challenges had to be taken into consideration in developing the framework in this document.

- Existing supply chain activities and standards vary considerably across the sector.
- Measurement systems are inconsistent and of variable sophistication. To be effective, measurements need to be based on data that are collected and analyzed consistently. Measures also need to be linked to a framework for improving performance. Within the organizations involved in the Working Group, understanding these challenges triggered considerable debate.
- Data collection and analysis must stay relevant as institutions evolve and adopt more advanced supply chain practices. The ability to capture and analyze the right data becomes increasingly important as the institution progresses towards effective supply chain management because it provides a baseline against which improvements can be measured.
- In the process of developing metrics, there was considerable discussion about which metrics to recommend and how high to set the benchmarks.

These challenges underline that transforming supply chain management and developing the performance measurement framework for the transformation will require numerous steps. The Working Group has prepared these recommendations to initiate the journey. The aim of this document is to establish consistency for Ontario hospitals through a common framework that will build greater supply chain efficiency. This means:

- working to ensure that all hospitals adopt the basic standards and supply chain practices needed to effectively manage the supply chain function;
- providing a set of consistent performance metrics that are clearly understood by all supply chain professionals and that support greater efficiency in supply chain management;
- gathering and reporting the data on a regular basis; and
- ultimately bringing together the results of individual hospitals to provide a picture of supply chain performance across Ontario. This would enable each hospital to understand the performance level of both the sector and their individual institution and to establish meaningful benchmarks and targets.

Fortunately, there are a number of well-developed and tested measures, especially of supply chain efficiency, that transcend organizational specifics. These metrics are useful in measuring supply chain performance no matter where an organization is located, its size, or even its business functions. Most of the metrics in this document have not been created specifically for the hospital sector, but have been tracked and used to drive improvement in a variety of industries for decades.

Measurement is more challenging in the higher stages of evolution in supply chain practices. When an activity is more strategic than transactional, there may be no simple ratio or formula to capture its impact on performance and an institution may need to develop its own monitoring processes. Despite this, there is significant value to be added from the most advanced supply chain approaches and all hospitals should aspire to achieve them.

A CASE STUDY — THE UNITED KINGDOM NATIONAL HEALTH SERVICE

The Purchasing and Supply Agency (PASA) was established to help modernize and improve the National Health Service (NHS) purchasing and supply system.

PASA is charged with ensuring the most effective use of the £11 billion (C$23 billion) spent by the NHS every year. In its six years of existence, PASA has made huge strides towards becoming the centre of expertise, knowledge and excellence on matters of purchasing and supply for the NHS.

The creation and adoption of performance metrics to manage progress have underpinned this effort. The metrics have changed as the organization has matured. In the past two years, the emphasis has shifted towards strategic supply management.

In April 2004, the Supply Chain Excellence initiative was launched with the goal of securing the best value and directing the greatest possible share of NHS funding towards improving clinical capacity and ultimately patient care. Through a focus on product quality, innovation, price, patient safety and choice, the program is expected to deliver over £500 million (C$1 billion) by 2007–08.

Strategic Goals	NHS Purchasing and Supply Agency
✓ Deliver efficiency and savings targets through a strategic approach to purchasing and supply ✓ Deliver Collaborative Procurement Hubs ✓ Deliver Centre for Evidence-based purchasing ✓ Deliver Department of Health and wider government policies through procurement	Strategy: To ensure every element of NHS expenditure is strategically managed in order to achieve value-for-money on the increasing NHS spend and, where applicable, ensure procurement plays a role in delivering government policies. Sample Measures 1. Savings against expenditure 2. Electronic ordering/mismatching 3. Proportion of items under contract 4. Qualified staff 5. Staff development/training days 6. Cost of procurement 7. Capital expenditure 8. Charitable funds expenditure and savings against budget 9. Ratio of purchasing to support staff 10. Savings per employee

Source: National Health Service, U.K.[2]

Driving the right behaviours

In developing a framework, the focus of the Working Group was not just on creating a list of metrics, but also on choosing measures to support the right behaviours. The goal was to ensure that resources would be managed in a way that aligned activities with priorities.

While patient care unquestionably serves as the highest mission for any hospital, each hospital will have particular priorities that reflect its patient base, clinical programs, resources and role in the community. The Working Group strove to create a framework that would help make the supply chain function an important contributor to meeting these priorities. With the right measures in place, an individual hospital should be able to improve the supply chain function not as an end in itself, but to support its priorities, improve decision-making, drive change to achieve better results, and demonstrate accountability.

Hospitals are a unique environment — one where the outcomes can be literally life-changing. Additionally, the rapid pace of change in the sector and the rising expectations of the public — as both consumers of healthcare services and as taxpayers — have increased the demands on administrators, front-line workers and suppliers alike. It was critical, therefore, to craft a measurement framework that considered a variety of different perspectives. It was also important to constantly recall the vision of better patient care — the guiding element in developing the framework.

The balanced scorecard: an adaptable framework

The Working Group agreed that a "balanced scorecard" was required for healthcare supply chain measurement.

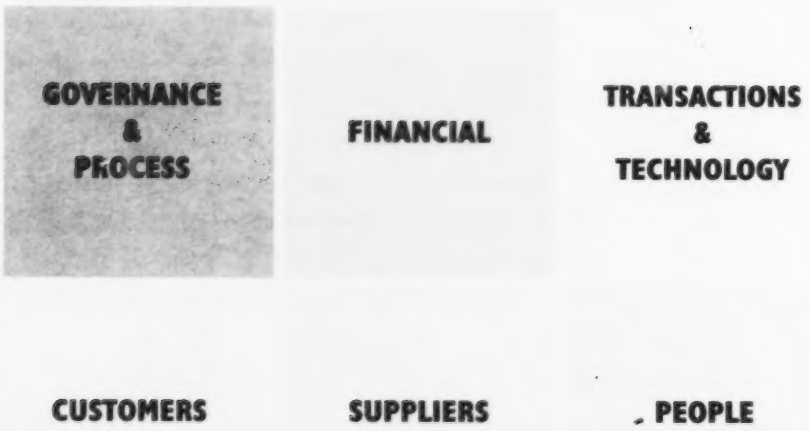
A wide range of public-sector organizations have embraced the concept of a "balanced scorecard" in recent years. Its value is its ability to translate the vision and objectives of an organization into action that balances financial and non-financial perspectives. The balanced scorecard was created in the early 1990s by Robert Kaplan and David Norton, professors at the Harvard Business School, as a simple tool for organizations of all types. They describe it in their first book, *The Balanced Scorecard*, and several subsequent works[5].

A balanced scorecard includes both traditional financial measures and measures that reflect other equally important perspectives. These generally include an organization's internal learning and growth, its business processes and customer satisfaction.

The scorecard works as a management tool by setting out explicitly the outcomes in each of these areas that support the strategy, vision and mission of the organization, and also provides ways to measure progress towards those outcomes.

Given the complex needs of the hospital sector, the Working Group constructed a scorecard with six dimensions of supply chain performance. The three areas in the first row address the structural foundations that underpin a supply chain capability, while the three in the second row recognize the importance of key resource groups and stakeholders.

The Balanced Scorecard



In developing the scorecard and associated metrics, the Working Group recognized the need for certain standards to be in place to support the proper functioning of the supply chain. Without meeting these pre-conditions, an institution would be unlikely to deliver high results on the associated metrics.

There are therefore two types of measure for each of the six areas. The first is a checklist of items, consisting of tools, processes and policies. These are headed "Standards" in the next chapter. The second is a set of metrics that can be used to provide a quantitative report of how well the hospital is performing and to measure progress.

CHAPTER 2: THE METRICS

This chapter outlines both the standard checklist and proposed metrics for each of the six dimensions in the balanced scorecard.

The Working Group evaluated each potential metric against nine principles. The goal was to ensure the final metrics would be effective, add value, drive appropriate behaviours, and not impose undue administrative burdens. The nine principles are[4]:

The Nine Principles

◦ Relevance:	Is the measure relevant to the organization's performance goals?
◦ Validity:	Does the measure actually measure what it is supposed to?
◦ Attribution:	Does it relate to factors that decision-makers can affect?
◦ Clarity:	Is it understandable?
◦ Accuracy:	Does it provide correct information in accordance with accepted standards?
◦ Comparability:	Can the data be used to make comparisons (over time/similar activities)?
◦ Consistency:	Does it relate to the same factors in all cases at all times?
◦ Timeliness:	Can data be collected and processed within a useful timeframe?
◦ Cost:	Is its value greater than the data collection costs?

This chapter can be used as a self-assessment tool. Supply chain professionals are encouraged to go through it with these three questions in mind.

- To what extent are we addressing the standards?
- Which of the metrics are we currently tracking, and how are we performing? Do we use this information to benchmark against other organizations and/or drive improvement by setting internal targets?
- What metrics do we need to add to monitor our current practices, and what new practices can we adopt to allow us to measure the other metrics?

Definitions for each of the standards can be found in Appendix A.

GOALS: Control of the plan-to-pay process and use of leading practices

STANDARDS

- ✓ Supply chain strategy
- ✓ Supply chain policies and procedures
- ✓ Audit standards and processes
- ✓ Strategic sourcing methodology
- ✓ Boilerplate contracts and key legal principles

STAGE 1 — CORE SUPPLY CHAIN OPERATIONS

1. Proportion of Items Under Contract

What? $\frac{\textit{Number of items under contract}}{\textit{Number of active items in master file}} \times 100$

Why? To reflect superior procurement planning, enable better control of expenditure and reduce risk, support greater standardization and promote better pricing through economies of scale

2. Purchasing Response Time from Requisition to Purchase Order (PO) Release

What? The average cycle time from requisition receipt in supply chain management to the release of the PO

Time-stamp date of purchase order issued - time-stamp date of requisition received

Expressed in hours, based on a 7.5-hour work day
Averaged for a random sample

Why? Measures the level of efficiency and speed of customer service in the supply chain

Excludes capital items (i.e., those with a value greater than $1,000)

STAGE 2 — EMERGING SUPPLY CHAIN PRACTICES

1. Compliance with Group Purchasing Organization (GPO) Contracts

What? $\frac{\textit{Purchases through GPO on a GPO Contract}}{\textit{Total potential purchases for items on GPO contract}} \times 100$

Why? To maximize the benefits delivered by purchasing arrangements, leverage process efficiencies and support standardization/ rationalization

Context – Applies only to organizations belonging to a GPO

2. Proportion of Expenditure Under Control

What? $\frac{\textit{Expenditure procured to an agreed, controlled purchasing process}}{\textit{Total expenditure}} \times 100$

Why? To reduce organizational purchasing risk and maintain effective segregated control over expenditure throughout the requisition-to-pay process

STAGE 3 — SUPPLY CHAIN EXCELLENCE

1. Proportion of Spend Actively Influenced by Supply Chain Management

What? $\frac{\textit{Expenditure actively influenced at point of defining need}}{\textit{Total expenditure}} \times 100$

Why? To maximize the value delivered by supply chain management and ensure solutions meet business needs

FINANCIAL

GOALS: Reducing the operating and purchasing costs of supply chain

STANDARDS

- ✓ Segregated approval and authority schedules
- ✓ Benefits reporting policy
- ✓ Benefits capture processes
- ✓ Inventory policy

STAGE 1 — CORE SUPPLY CHAIN OPERATIONS

1. Cost to Issue a Purchase Order

What? $\frac{\textit{Annual operating expense for supply chain}}{\textit{Total number of POs per annum}}$

Why? To maintain focus on making processes as efficient as possible

2. Inventory Turnover

What? $\frac{\textit{Total annual spend on stock items}}{\textit{Average inventory value in stock}}$

Why? To reduce the capital invested in storing goods; should be managed in the context of the costs of the reordering and restocking process and the risks of stock-outs

3. Operating Cost as a Proportion of Expenditure

What? $\frac{\textit{Supply chain management cost}}{\textit{Total value of all goods and services procured by supply chain management}} \times 100$

Why? To maintain a focus on reducing operating costs

STAGE 2 — EMERGING SUPPLY CHAIN PRACTICES

1. Hard Savings (Cash)

What? Annualized purchase price savings, fully realized operating cost savings and value-adds that result in bottom-line contribution

Why? To maintain a focus on reducing the cost of supply chain

2. Soft Savings (Redistributed and Infrastructure Costs)

What? Reductions in infrastructure requirements and/or operating costs for supply chain (facilities, people, equipment, etc.) that are not seen in the organization's bottom line

Why? To focus on reducing operating costs and other savings that do not necessarily appear in financial statements

3. Cost Avoidance

What? Price increases, deterioration of services and other hidden costs that were avoided through supply chain negotiations

Why? To capture the value contributed through avoiding escalating costs and preventing budget increases

4. Value of Lost, Obsolete and Redundant Supplies

What? The value of supplies lost, damaged, sold (lost asset value on disposal) or time expired

Why? To focus on stocking appropriate inventory and warehousing effectively

Stage 3 — Supply Chain Excellence

1. Proportion of Applicable Spend Managed on a Total Cost of Ownership Basis

What? $\dfrac{\textit{Total value of capital equipment and other items managed with consideration for their acquisition, in-service, maintenance and disposal costs}}{\textit{Total applicable expenditure}} \times 100$

Why? To maximize cost-effectiveness over the life of the purchase

2. Total Tracked Cost Base

What? The cost of all purchased goods and services monitored relative to a baseline date at fixed volumes

Why? To assess the relative cost performance of supply chain effort on total purchases

GOALS: Reducing the transactional burden and improving information

STAGE I — BASIC SUPPLY CHAIN OPERATIONS

STANDARDS

- ✓ Purchasing systems strategy
- ✓ Contracts database
- ✓ Low value transactions strategy

1. Number of Purchase Orders (POs)

What? Total number of POs placed each month

Why? To maintain a focus on reducing overall PO volumes and improving efficiency

2. Proportion of Rush Purchase Orders

What? $\frac{\textit{Number of POs that require expedition for delivery inconsistent with the normal receipt date}}{\textit{Total number of POs}} \times 100$

Why? To highlight any need for better understanding of customer needs, and/or improved planning and demand management, to reduce transaction costs

3. Number of Purchase Orders Placed per FTE per Day

What? $\frac{\textit{Number of POs placed in period}}{\textit{Number of FTE days in period}}$

Why? To improve the productivity of the purchasing function

4. Average Lines per Purchase Order.

What? $\frac{\textit{Total number of PO order lines issued}}{\textit{Total number of POs}}$

Why? To improve process efficiency and reduce invoicing by increasing the number of lines per PO

5. Number of Purchase Orders Placed per Supplier per Week

What? $\frac{\textit{Total number of POs each week}}{\textit{Number of suppliers}}$
(For suppliers to whom the organization issues over 100 POs annually)

Why? To identify large transactional volumes and maintain a focus on finding ways to reduce the number of POs issued

6. Number of Invoices

What? Total number of invoices received each month

Why? To maintain a focus on reducing overall invoice volumes

7. Proportion of Invoice Mismatches

What? $\frac{\textit{Number of invoices with at least one mismatch from the related PO (and receiving document, if applicable)}}{\textit{Total number of invoices}} \times 100$

Why? To enable the reduction of administrative burden by resolving the causal effects of mismatches

8. Proportion of Low Dollar Value Purchase Order Transactions

What? $\frac{\textit{Number of low-value PO transactions (under \$100)}}{\textit{Total number of POs}} \times 100$

Why? To focus on alternate purchasing methods (such as Purchasing Cards) for low-value purchases

Stage 2 — Emerging Supply Chain Practices

1. Proportion of Electronic Requisitions

What? $\frac{\text{Number of requisitions sent electronically to purchasing department}}{\text{Total number of requisitions}} \times 100$

Why? To focus on reducing time spent processing requisitions manually (excluding capital items and web-based requisitions that are sent directly to the supplier)

2. Proportion of Electronic Purchase Orders

What? $\frac{\text{Number of POs sent electronically}}{\text{Total number of POs}} \times 100$

Why? To reduce processing costs for both supply chain and suppliers

3. Proportion of Invoices Received Electronically

What? $\frac{\text{Number of electronic invoices received}}{\text{Number of total invoices}} \times 100$

Why? To reduce processing costs

4. Proportion of Invoices Paid via EFT (Electronic Funds Transfer)

What? $\frac{\text{Number of invoices paid electronically}}{\text{Total number of invoices}} \times 100$

Why? To improve supplier relationships, reduce cheque-writing costs, and allow for improved cash-flow management

Stage 3 — Supply Chain Excellence

1. Proportion of Expenditure Transacted Through e-Auctions

What? $\frac{\text{The value of goods and service sourced using e-auction/reverse auction}}{\text{Total applicable expenditure in identified suitable categories of expenditure}} \times 100$

Why? To drive cost improvement in competitive and tactical supply markets

2. Proportion of Expenditure Contracted Using e-RFx Tools (e.g., Electronic Request for Proposals or Requests for Information)

What? $\frac{\text{The value of goods and services for which e-RFx tools were used to coordinate the issue, receipt and management of documents}}{\text{Total applicable expenditure in identified suitable categories of expenditure}} \times 100$

Why? To track and better provide control of tendering processes with the ability to store proposals and other tendering project information

3. Proportion of Suitable Contracts Managed Using a Contract Management System

What? $\frac{\text{The number of contract where a contract management system is used to track and manage contract deliverables}}{\text{Total applicable contract}} \times 100$

Why? To better support the management of contract/project delivery

GOALS: Improving service delivery through comprehensive understanding of patient and clinician's needs

STANDARDS

- ✓ Customer survey tools and process
- ✓ Item addition and deletion policy and process

STAGE 1 — CORE SUPPLY CHAIN OPERATIONS

1. Stock-Outs at the Cart Level

What? $\frac{\text{Total number of stock-outs at the cart level}}{\text{Number of replenishments}} \times 100$

Why? To maintain a focus on identifying the right product to stock at levels to safeguard patient care

2. Fill Rates to End Users

What? $\frac{\text{Number of items replenished at the cart level}}{\text{Number of items ordered by an end user}} \times 100$

Why? To maintain a focus on meeting patient and clinician's needs
For stock items only

3. Proportion of Items Added to the Master File

What? $\frac{\text{Total number of items added to an organization's master file over one year}}{\text{Total number of items on the organization's master file at the start of the year}} \times 100$

Why? To gauge the expansion of the purchasing umbrella to include new products and suppliers

4. Proportion of Items Deleted from the Master File

What? $\frac{\text{Total number of active items deleted from an organization's master file over one year}}{\text{Total number of items on the organization's master file at the start of the year}} \times 100$

Why? To show success in rationalizing product services and suppliers to reduce the number of duplicates and alternates

STAGE 2 — EMERGING SUPPLY CHAIN PRACTICES

1. Customer Satisfaction

What? The extent to which patients and clinicians are satisfied with the services performed by supply chain management as measured by survey (indicators such as understanding and meeting needs, quality of outcomes, professionalism and courtesy, understanding of suppliers and markets, ideas creation, problem-solving)

Why? To maintain focus on improving customer satisfaction and meeting business needs more effectively

2. Demand Management and Forecasting

What? The extent to which supply chain management has input into interpreting and defining the organization/business unit forecasts and budgets (covering capital expenditure plans and other goods/services cost/demand information)

Why? To support supply chain in better managing demand and ensuring effective involvement earlier in the planning process

STAGE 3 — SUPPLY CHAIN EXCELLENCE

1. Customer Awareness Training

What? $\frac{\text{Number of customers/stakeholders having completed commercial awareness training}}{\text{Number of identified customers/stakeholders requiring commercial awareness training}} \times 100$

Why? To improve the organization's overall capability to manage supplier interactions, highlight the value of supply chain to their customers and create a collaborative environment within an organization

SUPPLIERS

GOALS: To leverage supplier expertise and resources to drive better supply chain outcomes.

STANDARDS

- ✓ Supplier performance management process
- ✓ Approved supplier list
- ✓ Supplier evaluation tools

STAGE 1 — CORE SUPPLY CHAIN OPERATIONS

1. Proportion of Invoices Paid Within Due Date

What? $\frac{\text{Number of invoices paid within agreed contract terms}}{\text{Total number of invoices paid}} \times 100$

Why? To maintain a focus on avoiding late-payment charges, maintaining good supplier relationships and ensuring any discounts are received

2. Supplier Performance (Proportion of On-Time and Complete Deliveries for Top 10 Suppliers)

What? $\frac{\text{Number of lines complete on first receipt by the required date}}{\text{Number of lines purchased}} \times 100$

Why? To maintain a focus on improving supplier performance

STAGE 2 — EMERGING SUPPLY CHAIN PRACTICES

1. Total Number of Active Suppliers

What? Total number of active suppliers (suppliers in use over past year)

Why? To focus on maintaining an optimum size for the supplier base by actively controlling supplier additions and deletions and ensuring the supply base does not grow to an inappropriate and uncontrollable size

2. Proportion of Suppliers Measured

What? $\frac{\text{Number of suppliers measured against set of agreed metrics}}{\text{Number of total active suppliers (over a threshold value or subject to appropriate categories)}} \times 100$

Why? To maintain focus on improving supplier performance

STAGE 3 — SUPPLY CHAIN EXCELLENCE

1. Number of New Supply Sources

What? Number of new suppliers identified each year

Why? To widen supplier choice in constrained supply markets with the objective of increasing competition and accessing more capable suppliers

2. Supplier Feedback Survey

What? Supplier perspectives regarding their interactions with the organization

Why? To improve effectiveness in the buyer–supplier relationship and drive improvement

3. Proportion of Suppliers Appraised and Audited (Against Agreed Targets)

What? $\frac{\text{Number of suppliers subjected to a structured appraisal process (prior to contract award or during contract term)}}{\text{Number of suppliers identified as requiring structured appraisal (over a threshold value or subject to appropriate categories)}} \times 100$

Why? To fully understand the capabilities of the suppliers and ensure that an organization establishes contracts with the very best suppliers available in a given supply market. To ensure that performance and capability gaps in existing suppliers can be identified and rectified

Goal: Investing in internal people to improve their contribution and help make supply chain a profession of choice

STANDARDS

- ✓ Job roles and specifications
- ✓ Competence frameworks
- ✓ Training and development curriculum
- ✓ Performance appraisal process

STAGE 1 — CORE SUPPLY CHAIN OPERATIONS

1. Voluntary Turnover

What? $\dfrac{\textit{Number of supply chain management people who voluntarily choose to leave the function annually}}{\textit{Average number of people in supply chain over the period}} \times 100$

Why? To indicate how attractive the function is to those working in supply chain, assess the level of job satisfaction and ensure a focus on retaining high quality resource

STAGE 2 — EMERGING SUPPLY CHAIN PRACTICES

1. Investment in Education and Skills Development

What? $\dfrac{\textit{The level of expenditure invested in developing people each year}}{\textit{Number of people in supply chain}}$

Why? To measure the commitment to improving the capability of supply chain staff

2. Proportion of Individuals Actively Appraised and Assessed

What? $\dfrac{\textit{Number of people appraised within agreed timeframes and frequency}}{\textit{Number of people in supply chain}} \times 100$

Why? To manage and reward performance, identify development needs, manage succession planning and ensure focus is applied in the right areas

STAGE 3 — SUPPLY CHAIN EXCELLENCE

1. Proportion of Individuals Qualified to Agreed Role Standards

What? $\dfrac{\textit{Number of staff members meeting agreed experience and minimum identified qualification needs}}{\textit{Number of people in supply chain}} \times 100$

Why? To measure success in building professionalism, ensuring people are suitably qualified and attracting high-calibre people

2. Level of Internal Staff Satisfaction

What? The extent to which staff are satisfied with the performance of the supply chain management department, its direction and how it is managed, as measured by internal survey

Why? To maintain focus on building and sustaining a well-motivated team of supply chain professionals and harnessing ideas for improvement

As part of the Working Group's mandate, its members selected a subset of metrics at an early stage of scorecard development and provided results from their respective organizations. These are included as Appendix B.

This exercise was useful both for providing a preliminary picture of supply chain management performance in Ontario and for determining the challenges in collecting and reporting data on a consistent basis — particularly as the time available to group members to complete the exercise was tightly constrained. The results helped to shape the definitions in this document, to organize metrics into stages of evolution and to identify gaps in some stages.

The following scorecard is a compilation of data collected from one of the participating institutions in the working group. The data have been organized as an example of how the Stage 1 metrics could be illustrated to communicate the results to stakeholders. Each hospital should create its own scorecard to report the results of the metrics that are applicable to the institution and its stakeholders.

Example Scorecard

GOVERNANCE & PROCESS	BASE	CURRENT
1. Proportion of items under contract	94%	
2. Response time – requisition to PO	15h	

FINANCIAL	BASE	CURRENT
1. Cost to issue a PO	$13	
2. Inventory turnover	19.2	
3. Operating cost/expenditures	1.5%	

TRANSACTIONS & TECHNOLOGY	BASE	CURRENT
1. Number of purchase orders	19,636	
2. Proportion of rush orders	5.7%	
3. Number of POs placed per FTE per day	21.3	
4. Average lines per PO	4.1	

	BASE	CURRENT
5. Number of POs per supplier per week	2.1	
6. Number of invoices	22,051	
7. Proportion of invoice mismatches	9.5%	
8. Proportion of low value orders	2.4%	

CUSTOMERS	BASE	CURRENT
1. Stock-outs at the cart level	1.1%	
2. Fill rates to end users	99%	

	BASE	CURRENT
3. Proportion of SKUs added	0.8%	
4. Proportion of SKUs deleted	0.5%	

SUPPLIERS	BASE	CURRENT
1. Payment by due date	99.9%	
2. Supplier performance	94%	

PEOPLE	BASE	CURRENT
1. Voluntary turnover	13.3%	

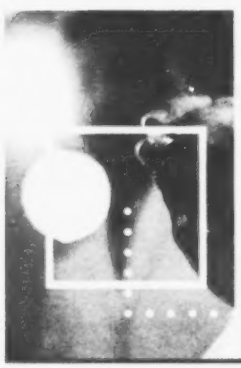
CHAPTER 3: ADOPTING THE SCORECARD

Planning the journey

Many hospitals in Ontario are already on their way to excellence in supply chain management. This report is designed to support every hospital within the province to develop a roadmap for achieving the most strategic approach possible to supply chain management.

After using Chapter 2 for diagnostic purposes, each hospital should look at the following next steps.

- Address the absence of any of the standards. Checklist items represent the necessary conditions not just for performance measurement, but also for effective management of the supply chain.
- Use the scorecard approach to better organize and share the information from those metrics currently being tracked. Showing where a metric fits on the scorecard makes it useful to both supply chain staff and senior administrators. An important element of this exercise will be to set internal targets for improvement in both the short and longer term.



Metrics: The Supplier Perspective

"Performance Measurement — A Report by the Hospital Supply Chain Metrics Working Group" focuses mainly on the benefits to hospitals, clinicians and patients of better supply chain management. It is important to note; however, that transformation offers benefits to suppliers as well, which can help to raise the value of the supplier–hospital relationship. In measuring the success of supply chain activities, the supplier community sees the opportunity to:

- improve their ability to meet the needs of their customers;
- manage the cost-to-serve model;
- maintain competitive pricing of products; and
- provide value to their stakeholders.

A number of suppliers in the healthcare sector have decided to move towards Six Sigma or Lean Six Sigma management methodologies. Metrics and data are cornerstones of both these approaches and cannot be undertaken without investing in a performance measurement framework.

Suppliers point out; however, that measurement alone will simply generate a series of numbers. Creating true value for an organization requires that performance measurement be effectively utilized to drive improvement and change internally. To do so, suppliers and hospitals must both ensure that the

measurement of supply chain activities is undertaken in a sustainable framework that provides consistency, comparability and assessment aimed at ongoing improvement.

Suppliers use metrics in a variety of ways to develop more efficient processes, reduce errors and decrease turn-around times. Furthermore, suppliers are investing in hardware and software to support the management of such metrics. For example, RF (radio-frequency) systems allow for continuous data capture of most distribution activities. These data, in turn, are used to identify opportunities to increase the order processing rate, reduce travel time and improve the quality of the customer order as it is assembled.

As hospitals develop the metrics set out in this report, including several that relate to suppliers, a more strategic approach to supply chain management will enhance the relationship with suppliers. Metrics can help both parties to better understand the challenges a hospital faces and to work on solutions. Metrics can also pinpoint areas in which opportunities exist for supplier improvement. When specific issues arise, tracking metrics — as opposed to anecdotal information — can help to identify the source of the problem and enable quicker resolution. In the more advanced stages of supply chain development, an increased strategic focus allows a hospital to tap into the non-monetary benefits of a more value-added relationship — for example, by having the supplier provide in-depth training on how to use various products or services, to increase efficiency and effectiveness.

Liana Scott, National Director of Advanced Customer Logistics, Source Medical Corporation.

- List which metrics are not being tracked and understand the reasons. Data for the metrics relevant to current activities should be consistently collected, tracked and analyzed. Metrics for new activities related to higher levels of supply chain evolution should be added as the new activities are adopted.

- Stage 1 describes the basic activities to support greater efficiency. All hospitals should undertake and track these activities.

- Hospitals using practices at the Stage 2 or 3 level should have a system in place to measure, track and report the related metrics.

The Working Group recognizes that, at any given point in time, an organization may be undertaking activities and using performance measures from any or all of the three stages.

The Working Group believes that all hospitals should implement Stage 1 activities and be working towards implementing Stage 2 activities. Most, if not all, hospitals should also aspire to implement Stage 3 activities. The action plan in the next section reflects this view and sets out a timeline for a hospital to reach its highest level of evolution.

The action plan

To help hospitals progress from assessment to transformation of supply chain practices, the Working Group suggests the following goals for the short, medium and long term.

Short Term (0–12 months)

- ✓ Adopt the metrics framework in principle
- ✓ Assess which standards are in place and begin work on those needed for Stage 1 metrics
- ✓ Implement all of the Stage 1 metrics that are not already in use

Medium Term (6–24 months)

- ✓ Adopt remaining standards
- ✓ Begin implementing Stage 2 activities and metrics not currently in use

Long Term (12–36 months)

- ✓ Develop an effective performance management reporting system
- ✓ Implement all Stage 2 activities and related metrics
- ✓ Begin implementing Stage 3 activities, as appropriate, and related metrics

Data collection and analysis

Institutions should begin data collection as soon as possible. The initial data collection will create baseline statistics for comparison and enable the creation of targets.

For some measures it may be necessary to carry out calculations manually, possibly using a random sample for the data. Despite the time this takes, it is a worthwhile investment. If many of the metrics must be prepared manually, this may signal the need to invest in systems to capture the data automatically.

Beyond the scorecard

An important part of these activities will be determining what the organization's goal should be for each metric. Information sharing among hospitals is a valuable aid to deciding what benchmarks to set. This suggests a role for a central group to act as a clearing-house for performance information. Without this, goal-setting may be more difficult and less consistent across the sector.

The exercise will also involve determining what resources will be required to create a measurement framework for each hospital (bearing in mind the principle that the cost of collecting data should not be greater than the value the exercise creates). Finally, there will be organizational challenges relating to implementation.

As with any transformation, the success of this initiative depends on a range of factors beyond the parameters of the transformation itself. These include:

- creating greater awareness of, and support for, integration in supply chain management among organizations and administrators;
- developing a higher profile for supply chain and the professionals who manage it;
- recruiting champions at the senior level of organizations and within the health care sector; and
- successfully transferring the knowledge developed within this Working Group and at leading-edge organizations to everyone in the sector who can benefit from it.

Through the efforts of OntarioBuys, the Province has recognized the importance of this initiative and undertaken outreach to the sector. This document is an important element in helping to achieve the conditions needed for transformation, by sharing knowledge and making the case for change.

CHAPTER 4: THE ROAD AHEAD

The Working Group hopes that this report will prove to have marked the beginning of an important performance metrics journey for Ontario's healthcare supply chains. To that end, members of the Working Group call on their supply chain colleagues and the hospitals they serve to accept the challenge this report contains.

This report contains valuable guidance that any hospital can use immediately to improve its supply chain performance. The concepts, standards and metrics in this report can help institutions:

- evaluate the current state of their supply chain;
- immediately improve their supply chain performance; and
- develop a plan for supply chain excellence.

To help build organizational momentum, the Working Group has provided a stand-alone Executive Summary for senior administrators that explains the benefits of supply chain leading practices and the importance of performance measurement to ensure the benefits are achieved. The Executive Summary also outlines the recommended timeline to adopt the proposed standards and metrics and the balanced scorecard as a tool to report the data.

While members of the Working Group look forward to individual hospitals benefiting from the use of the metrics set out in this document, they believe the best possible result for the healthcare sector as a whole can be achieved only if the Province works with Ontario's hospitals to create a shared, consistent reporting framework. This would provide industry standards, help identify leading-edge organizations, and give administrators feedback on their performance relative to peer organizations.

Though much work has been done to get to this point, the journey has just begun. An implementation manual will be prepared and published as an accompanying workbook with further explanation of the metrics and a strategy map. In addition, OntarioBuys is encouraged to create a "Phase II" Working Group to continue the progress towards:

- standardized processes to enable knowledge transfer;
- targets to measure against; and
- a common reporting framework to facilitate information sharing between hospitals and with the LHINs and Ministry of Health and Long-Term Care.

Considerable effort is required, but there is clear value in working towards the Working Group's vision:

> *"Contributing to the highest standard of patient care through comprehensive supply chain excellence."*

Endnotes:

1. The BPS Supply Chain Secretariat is part of Treasury Board Office, Ministry of Finance. For more information, see www.ontariobuys.fin.gov.on.ca or e-mail Ontario.buys@fin.gov.on.ca.
2. Adapted from:
   a. NHS Purchasing and Supply Agency, *Business Plan 2005/6*, October 2005, pages 6–8.
   b. NHS Purchasing and Supply Agency, *Performance Indicators for Purchasing and Supply 2003/4*, (www.pasa.nhs.uk/performanceindicators/).
3. Kaplan, Robert S. and David P. Norton. *The Balanced Scorecard: Translating Strategy into Action*, (USA: Harvard Business School Press, 1996).
4. Ontario Ministry of Government Services, "Pocket Guide to Performance Measurement," 2004.

APPENDIX A: DEFINITIONS OF STANDARDS

GOVERNANCE AND PROCESS

Supply chain strategy — The organization has a well-articulated plan that sets outs how the vision is to be delivered and is underpinned by measures of performance. The plan outlines goals for the organization to develop its people, processes and systems to improve the capability of supply chain.

Supply chain policy and procedures — The organization has described how it undertakes and ensures the integrity of its supply chain activities, addressing such areas as ethics, risk, relationships, gifts and hospitality, supplier evaluation and approvals, payment terms, conflicts of interest, commitment authority, law and jurisdiction.

Audit standards and process — A structured mechanism and review process has been established for identifying and resolving inconsistencies with established supply chain policies and procedures or other irregularities in supply chain processes.

Strategic sourcing methodology — The organization follows a structured approach to sourcing goods and services, using modern procurement techniques such as supply chain analysis, purchase price cost analysis, supply positioning and vulnerability analysis.

Boilerplate contracts and key legal principles — All purchase transactions are governed by a standard set of terms and conditions. In addition, there are standard contracts for all key expenditure categories, including capital, IT, services and commodities, that reflect the requirements of each of the underlying markets.

FINANCIAL

Segregated approval and authority schedules — The organization has established clear segregations in authority across functions and/or individuals to ensure control of the plan-to-pay process.

Benefits reporting policy — The organization has an agreed framework that addresses the measurement and reporting of financial benefits to stakeholders.

Benefits capture process — The organization uses a consistent method of measuring savings/benefits and uses tools and technology to ensure that these can be recorded and reported in an accurate, efficient, cost-effective manner.

Inventory policy — The policy addresses how inventory is to be managed across the organization and provides instructions for receiving, storage, audit/cycle count, classification, sale/disposal, loss/redundancy and release/return.

TECHNOLOGY AND TRANSACTIONS

Purchasing systems strategy — The organization has clear plans that outline how systems will be used to improve the efficiency, effectiveness and responsiveness of the plan-to-pay process. This strategy also considers the use of systems to better manage knowledge.

Contracts database — The organization has the means to track, record and manage all of its contractual commitments in a timely and accurate fashion.

Low-value transactions strategy — The organization analyzes its low-value transactions and has clear plans for how these should be managed to minimize the cost, risk and resource burden.

CUSTOMER

Customer survey tools and process — The organization measures feedback from individual customers, stakeholder groups and at the completion of a project level to assess quality and improve the level of service provided.

Item addition and deletion policy and process — The organization has a clear policy for determining which items/SKUs are added to or deleted from the master files and states the related responsibilities, authorities and procedures.

SUPPLIER

Supplier performance management process — Templates and processes support the organization in managing the performance of its suppliers. These address such aspects as organizational responsibility for managing suppliers, performance measures, reporting, problem escalation and the measurement/management of the relationship.

Approved supplier list — The organization manages and controls a comprehensive list of approved suppliers that have been evaluated using a rigorous assessment process.

Supplier evaluation tools — Supply chain staff has access to tools and templates to help in a thorough appraisal of suppliers. Web-based research and request-for-information processes are used for preliminary research on markets and prospective suppliers.

Job roles and specifications — The requirements of each staff position in the supply chain process are defined and cover such elements as the position's purpose, scope and accountability, and the qualifications, knowledge and experience needed for the job.

Competence frameworks — A framework is in place that aligns each of supply chain's defined roles to a set of technical and behavioural competence needs and identifies the competence levels required for each role.

Training and development curriculum — A learning map, fully aligned to the identified competence needs, is in place to guide the development needs of the entire supply chain organization at the group and individual level.

Performance appraisal process — There is a structured process for communicating work performance to staff members, identifying future development needs and supporting succession planning.

APPENDIX B : WORKING GROUP SAMPLE DATA COLLECTION RESULTS

Metric Number		Performance Metrics	High	Low	Mean
Governance and Process					
Stage 1 **Core Supply Chain Operations**	1	Proportion of Items Under Contract	99.7%	10.8%	75.9%
	2	Purchasing Response Time from Requisition to Purchase Order (PO) Release	15.0	3.5	9.1
Stage 2 **Emerging Supply Chain Practices**	1	Compliance with Group Purchasing Organization (GPO) Contracts	100.0%	55.0%	88.8%
Financial					
Stage 1 **Core Supply Chain Operations**	1	Cost to Issue a Purchase Order	$106.12	$12.93	$43.93
	2	Inventory Turnover	40	11	18
Transactions and Technology					
Stage 1 **Core Supply Chain Operations**	2	Proportion of Rush Purchase Orders	5.7%	0.5%	2.1%
	3	Number of Purchase Orders Placed per FTE per Day	33.0	5.9	18.1
	4	Average Lines per Purchase Order	5.0	2.4	3.4
	5	Number of Purchase Orders Placed per Supplier per Week	30.0	1.4	6.1
	7	Proportion of Invoice Mismatches	16.0%	3.7%	8.3%
	8	Proportion of Low Dollar Value Purchase Order Transactions	14.0%	0.0%	5.9%
Stage 2 **Emerging Supply Chain Practices**	1	Proportion of Electronic Requisitions	100.0%	0.0%	48.0%
	2	Proportion of Electronic Purchase Orders (EDI)	28.0%	2.0%	11.8%
		Proportion of Electronic Purchase Orders (auto fax or e-mail)	100.0%	60.0%	82.7%
	3	Proportion of Invoices Received Electronically	2.0%	0.0%	0.3%
	4	Proportion of Invoices Paid via EFT (Electronic Funds Transfer)	3.0%	0.0%	0.6%
Customers					
Stage 1 **Core Supply Chain Operations**	1	Stock-Out at the Cart Level	1.1%	0.3%	0.7%
	2	Fill Rates to End Users	98.9%	95.0%	97.9%
	3	Proportion of Items Added to the Master File (Collected as # of Items in One Month)	622	1	185
	4	Proportion of Items Deleted from the Master File (Collected as # of Items in One Month)	3327	0	508
Suppliers					
Stage 1 **Core Supply Chain Operations**	1	Proportion of Invoices Paid within Due Date	100.0%	0.0%	58.5%
	2	Supplier Performance (Proportion of On-Time and Complete Deliveries for Top 10 Suppliers)	98.4%	87.3%	93.5%

APPENDIX C: HOSPITAL SUPPLY CHAIN METRICS WORKING GROUP

Cynthia Chesler joined the Chatham–Kent Health Alliance in 1997 as Perioperative Material Manager, and moved to the position of Director, Material Management, in November 2000. From September to December 2003, and again from June to September 2004, she was interim Vice-President of Corporate Services. She began her career as an accountant with Peat Marwick; entered the healthcare field in 1988 at the Windsor Metropolitan General Hospital; sits on the boards of CareNet, CMEPP, and the Healthcare Supply Chain Network (HSCN); is a member of the Association for Healthcare Resource & Materials Management (AHRMM); and is chairperson of Medbuy's Material Management Group.

Wayne Coros is Director of Materials Management at the Hospital for Sick Children in Toronto, one of the largest pediatric academic health centres in the world. Wayne has almost 20 years of experience in supply chain management in the healthcare field and at the municipal level. He is currently leading an e-Supply Chain Project for the hospital, which proposes to automate the supply chain process by focusing on electronic requisitioning and purchase orders, point-of-use data capture, warehouse automation, electronic funds transfer and other priorities.

Don Cummer is Director of Purchasing with Shared Healthcare Supply Service (SHSS), a provider of purchasing services to four major Toronto hospitals. He has more than 25 years of experience in purchasing, materials management, and supply chain systems in the telecommunication and healthcare sectors, and is currently leading a project to implement leading-edge e-supply chain tools in SHSS member hospitals. He holds an Honours Bachelor of Art degree in Economics from McMaster University, and is a member of both the Council of Supply Chain Professionals and Supply Chain and Logistics Canada.

Derek Gascoigne is Director, Environmental Services, for the Thunder Bay Regional Health Sciences Centre, and has been involved in healthcare material management for 23 years, since graduating from Lakehead University with an Honours Bachelor of Commerce Degree. He is a two-time past president of the Ontario Hospital Material Management Association, and has been involved in a number of federal and provincial committees — including the Ontario Health Plan for an Influenza Pandemic in 2005. He enjoys working "for the betterment of our profession, and of supply chain management principles and best practices."

Ken Gazdic is Director of Materials Management at the Hôpital régional de Sudbury Regional Hospital, a multi-site regional referral centre serving northeastern Ontario. His professional background includes 10 years in public finance, policy and planning at the federal and provincial government levels, and five years of private-sector business and management consulting. He is a member of several hospital sector associations and working groups, including the Association for Healthcare Resource & Materials Management (AHRMM), Healthcare Supply Chain Network (HSCN) and Ontario Hospital Association CUPE Central Bargaining Team, and he has served as lead on select northeastern Ontario projects involving Integrated Supply Chain Management.

Kathy Jameson is Facilities and Materials Manager at the St. Thomas Elgin General Hospital with responsibility for supply chain management, building maintenance and sterile processing. The St. Thomas Elgin General is a 166 bed full service community hospital in southwestern Ontario. She has worked at the St. Thomas hospital for the past 17 years. Before entering the healthcare field she was an inventory coordinator for a major food distribution centre. She is currently leading a project to implement integrated supply chain management leading practices. The project's main focus is to automate and streamline processes associated with purchasing, warehousing and distribution of supplies.

David Makila's work as Director of Material Management at Windsor Regional Hospital has helped establish the institution as a client-focused healthcare organization; recent initiatives have emphasized the Erie–St. Clair region's Local Health Integration Network (LHIN), whose hospitals are committed to transforming current supply chain practices into an integrated supply chain model for the province. He earned a Master of Science in Administration from Central Michigan University, after obtaining undergraduate degrees in Commerce and Economics from the University of Windsor.

Tim Prokopetz has been Manager of Materials and Biomedical Engineering for Timmins and District Hospital for six years; he has worked in the materials management field for 15 years, including employment for nine years as materials manager for a Tier 1 automotive manufacturer. His manufacturing background was both instrumental and beneficial in the re-engineering of materials processes within the Timmins and District Hospital, where the implementation of strict spending policies and authorization levels assisted the hospital in its planning functions, reduced operating costs and aided in streamlining the payables function.

Scott Pruyn is Product Manager for Materials Solutions for San Francisco-based McKesson's Healthcare Resource Planning Division, with 15 years experience in healthcare supply chain automation at McKesson, Medibuy, Medline, and Enterprise Systems Inc. His more recent work involves an emphasis on materials management, information systems and analytical tools — including McKesson's Pathways Materials Management software, whose Horizon Business Insight component analyzes supply chain usage, including usage from surgical procedures to determine which products provide the best value, giving hospitals greater perspective on asset management and on how seemingly disparate activities are interrelated.

Lisa Purdy is a Senior Manager in Deloitte's National Health Services Practice, located in Toronto, where she works with clients in Ontario and across the country, bringing to bear her expertise in the areas of operations and performance management, strategic planning, organizational assessments, and financial and institution-wide recovery planning. In recent years, she has worked with individual hospitals and regional groups to advance supply chain management practices and develop strategies to work collaboratively, integrate services and evolve service delivery models to respond to emerging industry trends.

Liana Scott is National Director of Advanced Customer Logistics for Source Medical Corporation. In a 24-year professional career, she has conducted an activity-based costing study for a major Ontario teaching hospital, worked extensively in the healthcare supply chain field — ranging from material distribution to developing and implementing logistics services for Canadian hospitals — and since 1987 has focused on developing stockless inventory programs for medical institutions, including Brampton's William Osler Health Centre and Mississauga's Credit Valley Hospital. She is a founding board member and currently vice-chair of the Healthcare Supply Chain Network, and on the executive committee of CareNET.

Lynne Trott is Corporate Director of Logistical Services for The Ottawa Hospital, with responsibility for supply management, linen management, central processing, mail services and patient transportation. She has been involved with healthcare material management both within the hospital and in the private sector for more than 20 years, and is co-chair for the Champlain Regional Supply Chain Management Committee and a member of the Healthcare Supply Chain Network (HSCN).

The Working Group would like to thank and acknowledge the work of other contributors :

Brad Sinclair of Supply Chain Alliance
Simon Steele and Sheila Finn of PMMS
Jim Hadjiyianni, Jennifer Ship and Rupa Gill of OntarioBuys

Additional copies of the summary, as well as this report, are available through OntarioBuys.

OntarioBuys is a program under the
Treasury Board Office of the
Ontario Ministry of Finance
777 Bay Street, 8th Floor
Toronto, ON M5G 2C8
416-327-1147

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www.ontariobuys.fin.gov.on.ca
or e-mail
Ontario.buys@fin.gov.on.ca

© Queen's Printer for Ontario, 2006
ISBN **1-4249-1806-5** (Print)
ISBN **1-4249-1807-3** (HTML)
ISBN **1-4249-1808-1** (PDF)